

USACE responds to intense June floods in nation's heartland

Article and Photo
By George Stringham
St. Louis District

Torrential rains in Iowa in early June overwhelmed many major tributaries that feed into the Mississippi River. The swollen river overtopped 26 levees between Keithsburg, Ill., and St. Louis, Mo., and continues to threaten several other levees. With forecasts of average to above-average rainfall into early July, the river's crest is expected to be prolonged and possibly increased.

St. Louis District has had more than 60 employees in the field actively involved in the flood fight, and teams are working alongside levee districts and communities throughout the district's area of responsibility.

Flood preparations took center stage June 10, when District Commander Col. Lewis Setliff III activated the Emergency Operations Center at noon to increase awareness and be better prepared to meet any emerging situations.

Immediately, Corps personnel began contacting drainage and levee districts to coordinate flood fighting activities, should they become necessary, and to ensure such items as sandbags, pumps, and plastic were readily available.

The river's rising levels threatened many non-federal levees within St. Louis District in northeast Missouri. Within a week, those concerns became a reality as the Mississippi's waters began overtopping several agricultural levees along the Missouri side of the river.

As of June 27, St. Louis District had distributed more than two million sandbags, nearly 1,000 rolls of plastic, two eight-inch pumps, six 12-inch pumps, and averaged 60 or more personnel in the field per day providing technical assistance to levee districts and county agencies.

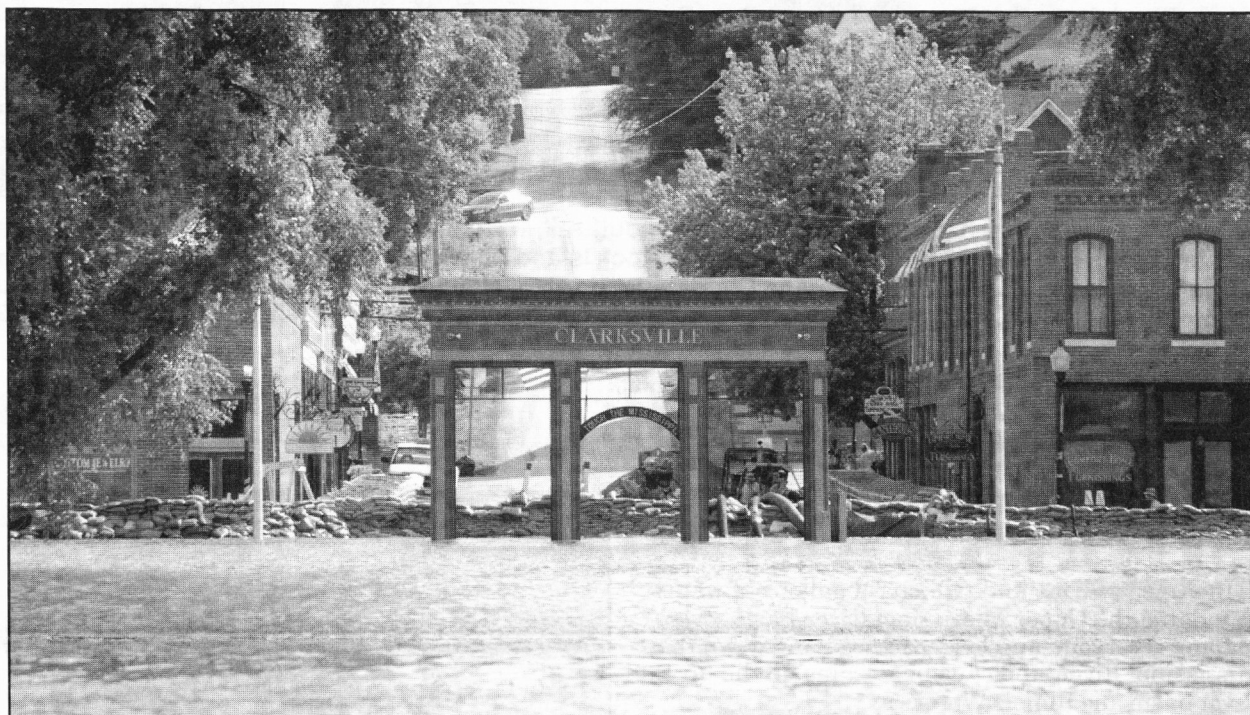
In the St. Louis area and southward, levees are not in danger of being overtopped, but are being closely monitored for previously identified seepage concerns. A few sand boils have been identified and contained, and temporary repairs were made to a malfunctioning 72-inch gravity drain 55 miles south of St. Louis in Illinois on the Mississippi River.

Action is not limited to areas north of St. Louis. Flood fight teams and area engineers in the metropolitan area and southward are actively engaging levee districts and local communities.

Impacts on navigation

River communities are not the only ones affected by the river's floodwaters. The navigation industry and businesses that rely on the waterway for moving products are also feeling the pain as several locks and railroad bridges were forced to close, primarily on the Upper Mississippi River. Impacted locks were initially numbers 12-25. As of June 27, seven locks had reopened.

The Melvin Price Locks and Dam in Alton, Ill., and Lock 27 in Granite City, Ill., remained open, allowing navigation access to and from the Illinois River.



The waterfront park sign in Clarksville, Mo., stands tall amid the Mississippi River's flood water, while a sandbag levee built by volunteers and the National Guard keeps the historic section of town dry.

Locks were closed to remove and store electric motors and electrical components that move lock gates and culvert valves. The time necessary to bring the locks back into operation will be determined by when water levels recede, whether there is damage, and how long it takes to reinstall machinery.

Though the Corps may close locks due to the high water, the U.S. Coast Guard decides whether the river should be closed to navigation. As of June 26, the Mississippi, Illinois, and Missouri rivers remained open to towboats, though restrictions were put in place to ensure safety of all who use the rivers. Tows were able to operate in the pools between closed locks, but they were unable to move up and down river through the locks.

While industry traffic is moving, on June 19 the U.S. Coast Guard did close 350 miles of the Mississippi River to recreational vessels from Jefferson Barracks Bridge south of St. Louis, to Lock and Dam 13 near Clinton, Iowa. The same was done for the lower 24 miles of the Illinois River and the lower 21 miles of the Kaskaskia River.

Another critical threshold for the navigation industry is when the Mississippi River reaches 38 feet on the St. Louis gage. At that point, the U.S. Coast Guard works with industry and the Corps to assess closing all or portions of the St. Louis

Harbor. The decision is based largely on the projected time water levels will remain at or above that critical level. This also addresses concerns about wave action and the increasing pressure applied to floodwalls and levees, as well as bridge clearances throughout the harbor.

Midwest Flood Quick Facts (as of June 27)

Record-breaking storms and flooding across six states.

- Shorter duration, but more intense than 1993 flood.

- Storm and flood levels approach or set records in many areas.

- Majority of property damage occurring along Upper Mississippi tributaries.

- Flooding will continue – 14 rivers flow into the Mississippi River basin, resulting in high river stages.

Sandbags: 14,148,200

Pumps: 121

Rolls of plastic: 3,259

Liters of water delivered: 1,710,000

Public safety

Throughout this event, public safety is the number one priority. One of the Corps' most important missions is to accurately convey information about risks that citizens need to make informed decisions.

Under the current circumstances, the public is urged to:

- Watch the situation around you, especially if you live or work in flood-prone areas.

- Monitor the news media for the latest updates and warnings.

- Have a "what if" plan if you live or work in a flood-prone area.

- Do not wade or swim or take recreation boats into river waters. They are especially treacherous now.

- Never drive into water standing on or flowing across on roads. Retreat and take another route.

As this story goes to press, St. Louis District remains heavily engaged with communities impacted by these events.



Alongside a temporary batter board and sandbag floodwall, Terry Jorgensen (center) of St. Paul District and Glen Hotchkiss of Rock Island District survey rising water at the South River Drainage District just north of Hannibal, Mo. (Photo by Mark Kane, Rock Island District)



Russ Ogden watches over pumps that are keeping water out of his mother's home in Davenport, Iowa. Family members built a wall around the house using sandbags provided by USACE. Delores Ogden, in the background, has lived there since 1951. (Associated Press Photo by Jeff Cook)

USACE people work hard in flood zone

By Mark Kane
Rock Island District

In June, trillions and trillions of gallons of water inundated the Upper Mississippi River Basin, overtopping reservoirs and levees in Iowa and down the Mississippi River, and causing flooding on the Rock River basin and Illinois Waterway.

Water levels across the region threatened to meet or exceed levels unseen since 1993.

Employees from Rock Island District, augmented by personnel from other districts across the U.S. Army Corps of Engineers, were dispatched from their day-to-day jobs to work for one of five Corps' emergency operations centers set up in Iowa and Illinois.

Employees serving in geological technical (geotech) teams and as flood area engineers (FAE) interacted with people in communities across the region. Their red shirts with the white Corps castle quickly appeared in towns and areas at risk of being flooded by high water.

Glen Hotchkiss, Engineering & Construction, said that, for the most part, the communities were glad to see the red shirts in their town.

"You run the whole gamut when it comes to hearing comments from people," Hotchkiss said. "Everything from telling us that they're glad we're here to we've seen this before and we don't necessarily need your help."

Younger flood area engineers like Adam Ziegler, Engineering & Construction, and Leo Keller, Programs & Project Management, had a lot of success talking with people in communities like Canton, Mo., and really helped enhance the Corps' relationship with the public.

Jimmy Aidala, Operations Division, said Ziegler and Keller came into the community with open minds and had been like sponges soaking up information from other Corps FAEs and geotech members, as well as from people in the communities inside the levee district they were assigned to.



A tornado funnel touches down in Orchard, Iowa, on June 10. Lori Mehmen of Orchard took the photo from her front door. Mehmen reported that the funnel came near the ground, and then went back up into the clouds. There were tree and crop damages, but no human injuries. (Photo courtesy of the Globe Gazette and Mitchell County Press News)

"It's really amazing," said Aidala. "Some of us bring a lot of knowledge because we were here in 1993, but sometimes that doesn't jive as well as you might think it would with community members. Adam and Leo might not have 'been there and done that,' but they're really relating to the community, using their training, and combining it with what they're learning from people in the communities like Canton."

In Canton, Ziegler and Keller's relationship resulted in them pairing up with two of the community levee inspectors using their personal utility vehicle. As a result, the four covered their levee inspection quickly, while sharing thoughts, insights, and assessments about the condition of the levees, the sandbags, and future efforts to keep Canton dry.

Jeff McReynolds, Canton's emergency management

director who led the effort to fortify the levee protecting the town, met with the Chief of Engineers, Lt. Gen. Robert Van Antwerp, during the chief's visit to the town. McReynolds specifically told Van Antwerp that Ziegler and Keller gave him the most reliable information and that both proved to be an incredible asset to the town's flood fight.

Terry Jorgenson, Engineering & Construction, St. Paul District, had additional positive thoughts about his interaction with community members fighting the flood.

"I'm impressed; the group here is great and supportive," said Jorgenson. "The locals are stressed, but they're focused. I'm also impressed with how hard they're working. The communities aren't just waiting around, they're getting after it. I was in Hannibal the first day. The locals there, the fire department, the sewer guys, they're very concerned, which is good. They're paying attention to details and asking a lot of questions. You could tell they really care about their communities."

Joe Dziuk, Engineering & Construction, initially worked as an FAE in the Des Moines area, then moved down to support the Corps' Quincy emergency operations center. Dziuk said the communities' confidence in the Corps has increased exponentially.

"As we've been out there, more and more they're seeking information from us and to give us information as well," Dziuk said. "Once they get to know us and find out our capabilities, they've interacted with us a lot more."

Rock Island District had 84 employees in Iowa, Illinois, Missouri, and Wisconsin to work with communities, local and state officials, and levee districts to assist the public in minimizing flood damages.

Inside the district's area of responsibility, the Corps' four field emergency operation centers were established in Des Moines, Iowa; Iowa City, Iowa; Cedar Rapids, Iowa; and Quincy, Ill. The district's permanent emergency operation center in Rock Island, Ill., coordinated the district's emergency operations efforts.



Floods demand wide range of missions

By Katelyn Brewer
Louisville District

During the Midwest floods in June, Louisville District's Emergency Operations Center supplied 35 to 40 emergency operations staff who were fully engaged in the flood fight throughout 36 counties in Indiana and Illinois.

Thirty counties in Indiana were declared disaster areas. As a result, Indiana and Illinois requested U.S. Army Corps of Engineers assistance to support their emergency response.

The Corps coordinated with the Federal Emergency Management Agency (FEMA), local emergency management officials, the Indiana Department of Homeland Security Emergency Operations Center, and Indiana Department of Natural Resources to find the best solution to protect the public.

Louisville District offered support in the flood fighting mission by providing 14 pumps and 12 flood fighting teams that were distributed throughout the affected areas.

At the request of FEMA, the Corps provided technical expertise to inspect and evaluate 106 private and state-



Flood water on the Wabash River in Indiana rushes through a gap in Wabash Levee Unit 8. (Photo courtesy of Louisville District)

owned dams in Indiana. The 13 dam inspection teams found one dam that had already failed and seven dams that needed immediate action.

The Corps' eight flood control dams in Indiana continued to operate as de-

signed. Had the lakes not been in place, the basin area would have experienced increased flooding along the reaches of the Middle Wabash and White rivers area.

The flood control reservoirs pre-

vented an estimated \$16.2 million in damages in urban and agriculture areas along Mill Creek, Eel River, White River, and Wabash River. Cagles Mill Lake near Terra Haute, Ind., set a new record level at 691.8 feet mean sea level, which surpassed its previous record set in 1996 by 1.4 feet.

Louisville District's levee inspection team completed a thorough evaluation of the levees in Indiana that had sustained breaks or been overtopped. Three levees, McGinnis, Blocksom-Jenckes, and Honey Creek were breached.

All were active in the Corps rehabilitation and inspection program in Indiana. Wabash Levee Unit 8, which was inactive in the Corps' rehabilitation and inspection program, overtopped and is not eligible for rehabilitation.

The worst levee problems occurred along the Wabash River, White River, and the East Fork of the White River.

To comply with a FEMA mission, the Corps recently sent out nine bridge inspection teams to survey bridges that may have been damaged during the flooding in Indiana.

Northwestern Division aids flood fight

By Diana Fredlund
Northwestern Division

As the Midwest struggles to overcome still more rain and flooding, U.S. Army Corps of Engineers districts are offering any assistance needed by sister districts impacted by the high water.

This time. "While districts within Northwestern Division were not faced with rising waters in such devastating amounts as those endured by Rock Island and St. Louis districts, each commander knows the qualifier to that sentence is 'this time,'" said Brig. Gen. William Rapp, commander of Northwestern Division. "With floods causing untold dollars in damage, the impacted districts will need as much help supporting their communities as they can get. NWD stands ready, with all other districts and divisions in the Corps, to help another member of the Corps family."

Ron Fournier, Rock Island District, estimated that districts have helped supply more than 10.5 million sandbags and 32 miles of plastic sheeting to stricken communities. About 40 Kansas City District employees are helping Rock Island and St. Louis districts fight floods in Iowa and northeastern Missouri.

"If the rains had been just a bit more to the southwest, we would have been in trouble," said Alicia Embry, Kansas City District Public Affairs Office. "We know what the communities are facing because of the floods in our area last year. Employees are volunteering to help in any way they're needed."

Support. Other Northwestern Division assets are being mobilized in support while districts keep a close eye on conditions at home.

"The division has provided more than \$1 million to the flood fight," said Michael Beaird, NWD emergency manager. "In addition to funding, we've provided technical support, such as team leaders to the Federal Emergency Management Agency, or by helping the Cheyenne River Sioux tribe improve their drinking water."

The Cheyenne River in South Dakota swelled above

flood stage from snow and rain in the Black Hills, according to Paul Johnston, Omaha District. "The municipal water intake for the Cheyenne River Sioux tribe near Eagle Butte, S.D., was threatened with not only high water but also heavy sediment loads."

The poor water quality forced dialysis patients to be moved to Rapid City, S.D. By working with South Dakota state officials, tribal leaders, and local agencies, a solution was found within two days, bringing clean water back to the community.

Flooding. Starting May 30, torrents of rain fell day after day throughout Omaha District, often driven by gale force winds, spiked with hail, and accompanied by tornadoes. Tributaries like the Platte River in Nebraska and the Boyer and Nishnabotna rivers in Iowa topped the agricultural levees that line them, spreading water over the recently planted fields of corn and soybeans and threatening towns like Hamburg, Iowa.

Two reservoirs on Salt Creek in Lincoln, Neb., reached historic high levels. The Missouri River ran above flood stage for 600 miles, from Plattsmouth, Neb., to its confluence with the Mississippi River.

The district dispatched engineers and geotechnical experts to threatened sites to measure water depths, survey levee heights, and provide technical advice to levee sponsors and city officials.

Warehouse personnel in Omaha worked overnight to dispatch more than 326,000 sandbags to 10 cities in Nebraska and Iowa, including 200,000 to Des Moines, Iowa, to support Rock Island District. Seven large pumps and sandbag filling machines were sent to Hamburg and several other area towns.

River systems. Until the volume of water is too great for levees and dams to handle, one of the best tools district water managers have is controlling river flow to decrease output until some of the water moves through the river system. In the Columbia River Basin, which stretches from southern Canada through Montana, Idaho, Washington, and Oregon, the Corps coordinates with Canadian, state, and other federal agencies to monitor the water lev-

els. Due to elevated snowpack levels in the Cascade Mountains, the Columbia River peaked at Vancouver, Wash., at 14.5 feet by the end of May, which caused a spike in water levels.

"If the Columbia River dams hadn't been in place, we estimate the river would have peaked at about 24.5 feet, meaning they reduced the water levels by 10 feet," said James Barton, of NWD's Columbia Basin Water Management Office. "Generally, the flood stage in this area is about 16 feet, so the dams' impact is significant."

Libby Dam in western Montana was credited with protecting Bonners Ferry, Idaho, from flooding in mid-May. "Last week, without Libby Dam the river level at Bonners Ferry would have been about 13 feet higher than present flood stage," said Larry Merkle, a hydrologist with Seattle District. "At that level, the river would have produced conditions similar to some of the catastrophic floods that occurred in 1950, 1957, 1961, and 1967."

Snowpack. Oregon's Willamette Valley Basin saw record-high snowpack levels this year. "We were keeping a close eye on water flows in the Willamette River this spring," said Mary Karen Scullion, Portland District. "The Willamette Valley dams were operated at lower than normal pool elevations to prepare for the run-off from the melting snow."

Scullion expects the last of the snow to melt by the end of June, but doesn't expect any problems with last of the snow passing through the river system.

"Although the Pacific Northwest has had a cooler spring than usual, the Columbia River Basin has had a normal year regarding run-off," said Cathy Hlebechuk, NWD's Reservoir Control Center. "This year has the fourth lowest run-off levels in 10 years, but as May and June warmed up, water levels have returned to normal, with about 40 percent of run-off left to flow through the river system."

Due to the warming trend, the Columbia River Basin is no longer in flood control operations and reservoirs are being filled to normal operations to fulfill the needs of recreation and environmental stewardship missions, Hlebechuk said.

Actions For Change Theme 3

Risk Communication to broaden USACE's ability to communicate on any issue

(In February, the "Engineer Update" published an overview of the Actions for Change (AFC) program. This month we continue that series with a report from our Theme 3 team. Theme 3 – Communication of Risk to the Public, encompasses two of the original 12 Actions for Change defined in August 2006 by Lt. Gen. Carl Strock, then Chief of Engineers.)

Actions for Change Theme 3: Communication of Risk to the Public will increase every USACE team member's ability to communicate on any issue and the ability as an organization to involve the public in USACE decision-making.

Theme 3 has responsibility for two of the 12 Actions for Change:

Action 9 — *Effectively communicate risk*

Action 10 — *Establish public involvement risk reduction strategies*

These two actions are interrelated and support the other Actions for Change. Theme 3 is also closely linked with Theme 2: Risk Informed Decision Making, since both risk communication and public involvement are needed to successfully involve the public in USACE policy decision making.

Theme 3 mission and goals

The Theme 3 mission is to develop policy, procedures, guidance, and training programs to implement new and improved risk communication and public involvement programs across USACE.

Theme 3 has two major goals. The first is to transform how USACE communicates risk to the public by implementing new methods, guidance, and training for risk communication in USACE. The principles of risk communication apply to communicating any issue so the new risk communication process will be a standard process for all communication in USACE.

The second is to transform how the public participates in making USACE policy decisions throughout the life cycle of a project from concept, to study, to planning, to design, to construction, and through operation. This will include the spectrum of public participation — informing, consulting, involving, and collaborating.

Theme 3 products

Under each action there are four products (deliverables):

Effectively communicate risk
9a. Develop methods to communicate risk

9b. Develop risk communication guidance

9c. Infuse risk communication

9d. Risk communication pilots

10a. Develop a framework for public involvement

10b. Develop residual risk education programs

10c. External advisory committee

10d. Public involvement pilots

This fiscal year, Theme 3 has begun

"9c. Infuse risk communication" with an aggressive basic risk-communication training program starting at the division level. The goal of this program is to provide a common body of knowledge to attendees who already deal with risk communication in their jobs.

Theme 3 has contracted with Fulton Communications to conduct these workshops. The workshops contain two elements — a half-day executive workshop for senior leaders in divisions and districts, and a three-day workshop for high-risk project managers, dam and levee safety personnel, floodplain managers, and public affairs personnel.

At press time, two divisions have hosted these workshops, Mississippi Valley Division and Southwestern Division. The workshops were well attended and well received. The course evaluations have also rated the course very high with many positive comments.

"Your Introductory Risk Communication Course provided some of the best...training I've ever had in responding to difficult questions and issues..." said John Balgavy, chief of design in Little Rock District in comments to Fulton Communication. "I can understand why USACE thinks this training is necessary...I have to admit that I was dreading three days of communication training, but can honestly say that every minute was well spent."

The Theme 3 Team is completing statements of work for:

• **9a. Develop methods to communicate risk**

• **9b. Develop risk communication guidance**

• **10a. Develop a public involvement framework**

These subtasks will be well underway by the end of the fiscal year, and schedules call for the planning phases for these subtasks to be completed by December 31.

The Theme 3 training program will continue in the next fiscal year with implementation of a three-tiered training program. First, continuing with risk communication workshops by Fulton Communications with classes planned for centers, labs, and select districts.

Second, developing and presenting a USACE risk communication train-the-trainer program, which will train a cadre of about 60 trainers to continue to infuse risk communication and public involvement throughout USACE. The target audience for this program will be project managers, planners, regulators, other product delivery team members who serve as subject-matter experts and public affairs officers.

Included in this five-day training course will be one day on strategic communication, two days on risk communication, and two days on public participation. A prerequisite for being a trainer for this course will be attending the three-day risk communication workshop.

The third tier of the training program will be an online/distance-learning risk communication program for everyone in USACE. This program will use the lat-

est online and distance learning training methods to give every USACE member a basic understanding of risk communication and public involvement.

Also, this fiscal year, the Theme 3 Team is putting together an external advisory committee to peer review the team's subtasks and products. These will be recognized experts in the fields of risk communication and public participation.

In addition, an internal committee of USACE advisers is being formed to provide internal technical review of process and products. The members of these committees are being recruited now.

Next fiscal year, planned activities also include developing a residual risk education program for key stakeholders such as local governments. It will educate them on what residual risk is, how to educate their communities about residual risk, and how to communicate residual risk to their communities.

Pilots for both risk communication and public involvement are also planned next fiscal year. Two divisions have been asked to help in developing Theme 3 initiatives — South Pacific Division and Mississippi Valley Division. The pilots will take place in Sacramento District and New Orleans District.

Theme 3 Team

The Theme 3 team members are:

• Lt. Col. David Berczek, Headquarters

• Dr. Hal Cardwell, Institute of Water Resources

• Michael Coffey, Northwestern Division

• Nancy Porter, Headquarters

• Judy Soutiere, Sacramento District

• Wayne Stroupe, Engineering Research & Development Center

• Bill Peoples, Nashville District, team leader.

The team is still actively recruiting members, specifically USACE team members who have a technical background in developing technical risk-communication products such as flood-risk maps or a background in risk management. If interested, please contact Bill Peoples.

As a USACE team member reading this article, what can you do? First, you can expect to have some risk communication and/or public involvement training in the next couple of years. If you are involved with Corps projects you can expect to attend a workshop by contract training or by a USACE trainer.

Most important, you will be able to learn new communication skills that you can use on the job, as a community member, and in your personal life. In doing so, you can help to transform the way USACE communicates both internally and externally.

Further information about Theme 3 activities can be found at the AFC Web site <https://maps.crrel.usace.army.mil/AFC> or by contacting Bill Peoples at William.L.Peoples@usace.army.mil, 615-736-5966.

Risk Communication Workshops

| Division | Course | Location | Start Date | Time |
|----------|-----------|---------------|------------|-----------|
| MVD | Executive | Vicksburg | May 27 | 1:30 p.m. |
| MVD | 3-day | Vicksburg | May 28 | 1:30 p.m. |
| SWD | Executive | Dallas | June 3 | 9 a.m. |
| SWD | 3-day | Dallas | June 4 | 8 a.m. |
| SPD | Executive | San Francisco | July 14 | 1 p.m. |
| SPD | 3-day | Sacramento | July 15 | 8 a.m. |
| SPD | Executive | Sacramento | July 18 | 8 a.m. |
| NWD | Executive | Portland | July 28 | 1 p.m. |
| NWD | 3-day | Portland | July 29 | 8 a.m. |
| LRD | 3-day | Cincinnati | Aug. 12 | 8 a.m. |
| LRD | Executive | Cincinnati | Aug. 15 | 8 a.m. |
| SAD | Executive | Atlanta | Sept. 8 | 1 p.m. |
| SAD | 3-day | Atlanta | Sept. 8 | 8 a.m. |
| NAD | Executive | Baltimore | Oct. 6 | 1 p.m. |
| NAD | 3-day | Baltimore | Oct. 7 | 8 a.m. |

Jacksonville District shores up vital dike

By Susan Jackson
Jacksonville District

A 143-mile earthen levee surrounds 720 square miles of Lake Okeechobee, the second largest freshwater lake in the nation and the heart of the Florida Everglades. For more than 75 years, the Herbert Hoover Dike (HHD) has prevented loss of life and property damage due to flooding, and the water within its walls has served as South Florida's backup water supply.

But in the late 1990s the U.S. Army Corps of Engineers identified a need to repair the dike. In 2007, HHD became an "urgent and compelling" project.

Jacksonville District has begun a massive rehabilitation project to prevent prolonged high lake levels from eroding the HHD. The first phases of rehabilitation are under way and focus on the oldest areas of the dike, where the lake once flowed naturally in a "river of grass" for thousands of years.

After devastating storm seasons in 2004 and 2005, two consecutive years of drought have benefitted the Herbert Hoover Dike Rehabilitation Project. With calm weather and record low water, Jacksonville District engineers fast-tracked schedules and made unprecedented progress on inspections and repairs.

"Previously, we could only schedule three or four culvert inspections a year, but we took advantage of the rare opportunity allowed by the lower water elevations to obtain valuable updated information," said Brent Trauger, dam safety program manager. A geotechnical specialist also inspected the entire dike, including areas that are usually under water.

Jacksonville District is rehabilitating portions of the dike identified as most vulnerable, focusing initial efforts on achieving the most significant impacts. Engineers are also designing the HHD to dam standards, with additional redundancy and resiliency to withstand extreme weather events.

The dike rehabilitation maintains a high profile during times of extreme wet weather and drought, requiring numerous parallel and simultaneous activities and the expertise of a diverse team.

"We have a vast team of engineers, locally and from across the nation, who are experts in the rehabilita-



The cutting and mixing arm rips into the ground like a giant chain saw. (Photo courtesy of Jacksonville District)

tion of dams, levees, and structures," said project manager Michael Rogalski. "Team members are applying lessons learned, addressing a wide variety of priorities, and making solid progress."

Corps personnel have filled in miles of toe ditch, which helps prevent piping (internal erosion), and have begun building a seepage berm on the outside of the dike. These will counter internal pressure from rising waters by balancing pressure on the land side of the dike.

Construction of a cutoff wall, also well under way, will provide the critical internal fix, by arresting existing piping and preventing new piping through the dike, foundation, and limestone layers.

Lead engineer Dave Dollar said the district sought worldwide cutoff wall expertise and has contracted with the very best available sources.

"We awarded three performance-based contracts that do not dictate the cutoff wall technique," Dollar explained. "Potentially, all three contractors could work simultaneously. Using multiple award task order contracts provides us with the flexibility we need to achieve our timeline and objectives."

Once awarded a task order, a contractor must build

a 500-foot demonstration panel to prove that the technique and finished panel meet rigorous standards.

Contractor Hayward Baker, Inc. of Odenton, Md., is using the trench cutting and remixing deep wall (TRD) method, while Bauer Foundation, Inc. of Clearwater, Fla., will use a hydraulic excavator and cutter-soil-mix (CSM) method.

The TRD method involves a hydraulic-driven cutting and mixing arm, resembling a chain saw, which pumps out and mixes cement with foundation soil in a continuous trench. The CSM technique involves excavating a guide trench to collect spoil and advance the mixing tool into the ground.

Jacksonville District anticipates awarding additional task orders this summer, with all construction taking place within a 22-mile stretch that is considered the most vulnerable section of the 143-mile dike.

The district has dedicated resources to maintain momentum on the rehabilitation. The independent technical review team includes senior engineers from across the Corps who are on call to address issues that arise during construction.

"All of the team members bring specialized design and construction backgrounds in addition to their professional experiences," said Jay Davis, lead geotechnical engineer. "The team has been together for about two years, and has reviewed every significant project design change, engineering or design report, and contract documentation along the way."

Jacksonville District has also enhanced its in-house geotechnical design team by seeking assistance from other Corps districts. Currently, designers and geotechnical engineers from Chicago, Detroit, Huntington, Mobile, and Savannah districts are lending their design and analytical skills to the project. "By expanding our resource pool, we've broadened the overall team's experience and knowledge base," Davis said.

"Each of these measures will help ensure the Herbert Hoover Dike rehabilitation project continues to move forward as rapidly, safely, and effectively as possible," said Col. Paul Grosskruger, Jacksonville District commander. "Each phase of rehabilitation we complete is a huge step forward in providing South Florida residents with more protection than they had before."

Low lake level reveals ancient history

By Barry Vorse
Jacksonville District

The recent discovery of the remains of ancient settlements on the bottom of drought-stricken Lake Okeechobee has fascinated the nation, and perhaps no person more than Jacksonville District archaeologist Natalie Garrett.

"I'm half Creek Indian," said Garrett, an Oklahoman who came to the district from the Bureau of Indian Affairs. "My people are related to the Seminoles, so these discoveries have a personal meaning that is difficult for me to put into words, as an archaeologist and a Native American."

Lower water levels caused by drought have exposed 21 archaeological sites on the lake. Thousands of artifacts have been unearthed, including pottery, shell pendants, candle holders, arrowheads, and fishing weights. Garrett visited a number of the sites and personally found shards of pottery and other remnants of the past.

Palm Beach County is the lead governmental agency in the archaeological mission, and the state of Florida is tasked with safeguarding, documenting, and informing local tribal officials of the discovery of human remains and graves.

Garrett and Jacksonville District biologist Yvonne Haberer found pottery dating to 2000 BC and other artifacts, including mound earthworks, dating to 500 BC. Most of these pieces were found in Reaches 1 and 2 of the lake, generally around Pahokee, Fla.,

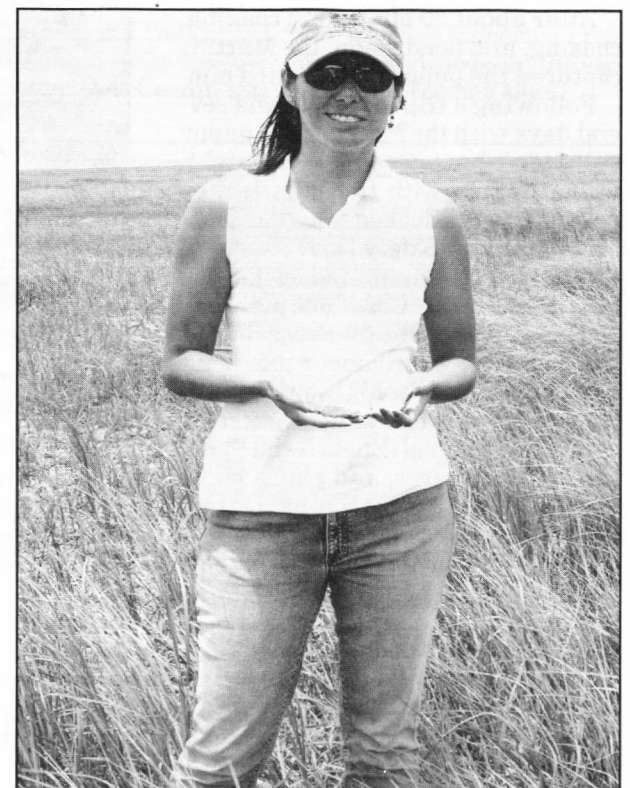


Natalie Garrett and some of the pottery fragments she found at Lake Okeechobee. (Photos courtesy of Jacksonville District)

and Clewiston, Fla.

Not all of the discovered pieces were prehistoric. Garrett and Haberer were shown the remains of a steam dredge, circa 1928. The vessel was powered by a giant boiler that is still somewhat intact. An old catfish boat was also exposed by the low water levels. Garrett said both are eligible for registration with the National Historic Registry.

Another feature that Garrett and Haberer marveled at seeing was the original riverbed at the southern end of Lake Okeechobee.



"Seeing the riverbed and everything else is a once-in-a-lifetime experience," Garrett said. "Anyone who goes there does not want to leave."

Okla. man rescued from flooded creek

Article by Ross Adkins
Photo by Dion Burleson
Tulsa District

Quick thinking and action by Tulsa District hydraulic technicians probably saved the life of an 87-year-old Oklahoma man.

Dion Burleson, Dr. David Williams, and Randy Moe were making Doppler radar flood stream flow measurements along Big Creek near Childers, Okla., when they happened upon a pickup truck that had been pushed off the road by swift-moving water.

At first, none of the three paid any attention because it looked like an abandoned vehicle, and they were busy taking flow measurements.

But the truck was *not* abandoned and when its driver saw the U.S. Army Corps of Engineers van, he stepped out of his truck into hip-deep water.

Spotting his movement, Williams shouted at the man to stay in his truck so they could get help. But he tried to



Randy Moe steadies Mr. Beu in the swift water of Big Creek.

wade toward the front of his pickup through the swift water.

Burleson said, "As he approached the front of his truck, he slipped and fell, almost going under. He was lucky he managed to cling to his truck."

Seeing him lose his footing, Burleson quickly drove the heavy

Corps van into the water closer to the pickup. As they approached the truck, Moe jumped into the water, made his way to the man, and helped him regain his footing.

Moe and the elderly gentleman carefully made their way to the Corps van, which Burleson then backed out of the

flooded creek.

While the rescue was going on, Burleson documented the effort by shooting photos.

"He looked frail, but he was pretty insistent that we drive him to a neighbor's house," Burleson said.

The man, identified only as Mr. Beu, convinced his neighbor to take his tractor back to where the pickup was stranded.

"Mr. Beu was pretty set in his ways and insisted on being taken by tractor back to his pickup," Burleson said. "When he couldn't get it started, he agreed to let his neighbor drag the truck back to higher ground."

Burleson commented, "If he hadn't caught onto his truck when he lost his footing, he'd have been in the next town in a couple of hours."

All three technicians agreed Mr. Beu's adventure was a good example why people should not drive into moving water. It was also an excellent example of Corps employees concern for others.

Abandoned pup rescued, becomes real-life Bobber, the Water Safety Dog

Bobber, the Water Safety Dog, a successful cartoon character, has come to life at Philpott Lake in Wilmington District.

The story began in late March when off-duty park rangers Danny and Susan Martin were driving on a rural road and observed a small brown puppy living in a pile of old, discarded tires. The puppy had apparently been dropped off and abandoned to survive on its own.

After about 30 minutes of coaxing, chasing, and persuasion, the Martins captured the puppy and adopted him.

Following a trip to the vet and several days with the Martins, the puppy still didn't have a name. One night, while playing with the puppy, they noticed that he looked a lot like Bobber, the Water Safety Dog.

Bobber is the animated spokesdog for the U.S. Army Corps of Engineers' National Water Safety Program. At his Web site, www.bobber.info, children can enjoy four high-quality cartoons with a water safety message, download bilingual (English and Spanish) coloring pages, and play a game to take a boat through a navigation lock.

So the Martins named their new puppy Bobber. Then a plan began to unfold.

The Martins thought, "Why don't we train him to wear a life jacket and take him to the parks to promote wearing life jackets? The kids will love him. We can carry a stack of Bobber coloring books to give out. Yeah, and we can make some Bobber pin-on buttons, and get Bobber trading cards



Park ranger Danny Martin and Bobber with some of their new friends at Philpott Lake. (Photo courtesy of Wilmington District)

with a water safety message."

So began Bobber's education. After obtaining appropriate approvals and developing policies to ensure safe operating procedures, Bobber was fitted with a life jacket designed for dogs. He began a training program to become familiar with the typical sights and sounds at a U.S. Army Corps of Engineers campground. Children running, bicycles and skateboards whizzing by, barking dogs, and honking geese soon all became commonplace to Bobber.

While Bobber was training, volun-

teers back at the Visitor Assistance Center were busy making Bobber buttons to give to children.

Finally Bobber was ready for his debut. On May 24 at Goose Point Park, Bobber proudly displayed his new uniform and quickly attracted everyone's attention as the Martins led him through the campground. As children ran to take a look, they received Bobber coloring books, Bobber buttons, and a short water safety lesson that included a discussion about the importance of wearing a life jacket.

Parents and kids were told about Bobber's Web site with its cartoons, coloring pages, and game. Since Little Rock District's Toby Isbell created the cartoon Bobber, thousands of children have learned the importance of practicing good water safety techniques and wearing a life jacket.

"When coming up with the character, I had in mind that rangers might use a real dog to play the part, and some have done so," Isbell said. "But as far as I know this is the first dog to be named Bobber, and that's really cool. It's wonderful that this once-abandoned little life now might save the lives of many."

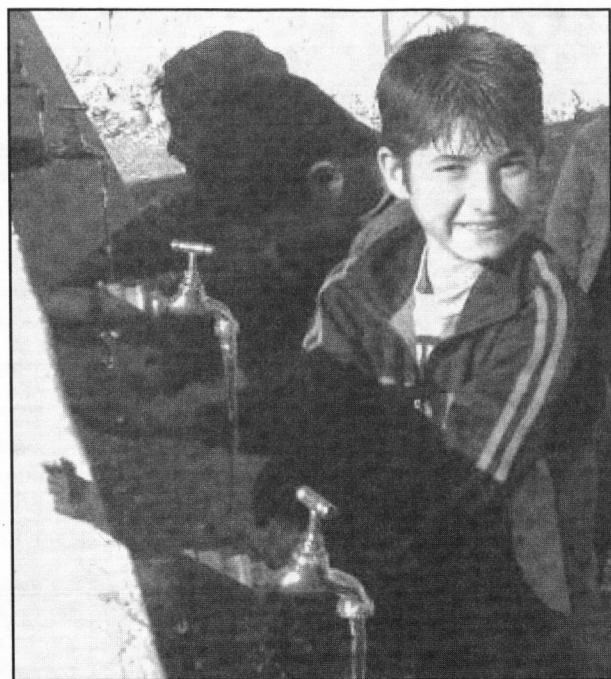
The Martins say that Bobber loves to meet people, and will make appearances at all of the Philpott Lake campgrounds throughout the summer. He has become an important asset to the lake staff in promoting water safety and the importance of wearing a life jacket.

To see Bobber's cartoons and learn much more from Bobber and his friends about water safety, visit www.Bobber.info.

For more information about the Corps' National Water Safety program, and to find many more resources for spreading the water safety message including videos, posters, teacher's guide, coloring books, and brochures, please visit <http://watersafety.usace.army.mil>.

(This article was written by Danny and Susan Martin, park rangers at Philpott Lake in Wilmington District. Bernard Tate at Headquarters contributed to this article.)

Around the Corps



Children in a Sinjar Mountain village enjoy the first day of fresh water from the new water project.

Sinjar Mountain

More than 200,000 Iraqi citizens in the Sinjar Mountain region of northern Iraq have clean drinking water for the first time after Gulf Region North District turned the Sinjar Wells project over to the provincial government.

The project spans 56 villages in 13 zones, with each zone connecting villages to both the water pipeline network and electrical cables to power the pumps. Generators at each site provide backup power. More than 116 kilometers (72 miles) of water distribution lines were installed; 48 new wells were drilled and another 57 refurbished; 84 new pumps were installed; and 60 water storage tanks were built. The \$17 million project was funded through the Iraq Relief and Reconstruction Fund.

Al Kut Votech

"Our job training capabilities have been greatly expanded," said Eman Hamza Mahamood, headmistress of Al Kut Vocational Technical Center. "This offers residents in Wasit Province a state-of-the-art facility to learn marketable skills."

Mahamood spoke at a ceremony marking the completion of a \$1.6 million upgrade. That project included a new auto mechanics building, a new warehouse, a new carpentry-masonry workshop, repair of water and sewer lines, a fire suppression system, and painting the main building under a \$788,852 contract overseen by Gulf Region South District.

The 358th Civil Affairs Brigade funded \$898,729 for new classroom equipment. This included Pentium 4 computers and monitors, projectors, masonry tools, circular saws, electric drills, welding equipment, surveying instruments, concrete mixer, grinders, compressors, welders, auto mechanic equipment, air conditioning repair equipment, sewing machines, painting and carpentry tools, chairs, and desks.

"When construction started last October we had 30 students, currently we have 260, and next year we forecast that 360 students will be involved," said Engineer Eman, senior administrator.

New Bobber cartoon

A new water safety cartoon has been posted to the Web site featuring Bobber, the Water Safety Dog. "Who's Your Buddy?" is the fourth cartoon in the series, and has the safety message of always swimming with a buddy.

The cartoon was written by Corps employees Don Harris, Toby Isbell, Michael Jordan, and professional Hollywood script writer John Donovan. Harris performed all the voices, except for one provided by Russellville Project Office summer ranger Maria Torres in Little Rock District.

The Bobber cartoons are produced with the guidance of Lynda Nutt, manager of the National Water Safety Program, and NWSP team.

Viewers can watch "Who's Your Buddy?" at www.bobber.info. The Web site also features three more cartoons, coloring pages, and a navigation lock game.

Corrections

Seattle District designed the Jacksonville Avenue 300 Person Barracks at Fort Lewis, Wash.

Kansas City District designed the Lewis and Clark Center at Fort Leavenworth, Kan.

Contracting award

The Army's 2007 Outstanding Unit/Team Award for Specialized Services & Construction Contracting went to South Atlantic Division's Military Construction Transformation Team for developing a streamlined contracting process to save the Department of Defense millions of dollars in construction costs.

The anticipated workload for the Southeast is more than \$9.2 billion during the next three-to-five years from BRAC 2005, Army transformation, global repositioning, and more. The project delivery team developed a process for establishing and executing contracts that maximized existing regional human and fiscal resources.

Pre-positioned construction contracting tools are in place to handle the massive construction requirements projected on Army installations, Air Force bases, and other DoD agencies in the Southeast. Changes in contracting methods will generate more than 30 percent savings in the time needed to award a contract, contract duration, and costs per project. The savings will allow the Army to fund additional facilities to improve the quality of life for the armed forces and their families.

Midwest levee conference

St. Louis District assisted in planning the Midwest Levee Conference in the Hyatt Regency St. Louis Riverfront Hotel. There were 335 registered participants from all over the Midwest. The St. Louis chapters of the Society of American Military Engineers and American Society of Civil Engineers sponsored the conference.

Several Corps personnel took part in the conference. Col. Lewis Setliff III, St. Louis District commander, and Brig. Gen. Michael Walsh, Mississippi Valley Division commander, gave the welcome speeches. Steve Stockton, director of civil works, gave a presentation titled "Flood Risk Management: A Systems Approach."

The conference covered three main themes: flood risk management, levee system assessments and technology exchange, and continuing challenges. It continued the emphasis on Midwest flood protection systems, a commitment to share expertise and lessons learned across state boundaries, and ensuring reliable flood protection.

Electric substation

Southwest Baghdad is benefiting from the recent completion of electricity transmission lines and energizing a major substation. The al-Rasheed 400 kilovolt (kV) substation was energized only a few days after the Iraqi Ministry of Electricity hooked up a new 11 kilometer (6.8 mile) 400kV transmission line to

the station.

"This will increase reliability of power for all people in southwest Baghdad," said Lt. Cmdr. Andrew Johnson, Gulf Region Division government lead for electricity transmission and distribution projects. "It will connect them directly to the 400kV grid, a more reliable and stable source of power than what they're used to."

The \$38 million project, funded by the Iraq Relief and Reconstruction Fund, was actually a rebuild. Construction of the substation originally began under the Oil for Food program in 2001, but was abandoned in 2003 when about 80 percent complete.

After the Saddam Hussein regime fell, the substation suffered heavy looting. All moveable equipment was stolen, and most low voltage and control cables were stripped. All protection and all 400-kV and 132-kV control cubicle panels were destroyed.

Starting from scratch, the project installed 400-kV gas insulated switchgear and 400-kV air insulated switchgear for four overhead line bays and four 250-megavolt transformer bays.

The project included rehabilitating the 132kV gas insulated switchgear; replaced the 11-kV switchgear, low voltage switchgear, low voltage cables and control cables; and refurbished all buildings and building services.

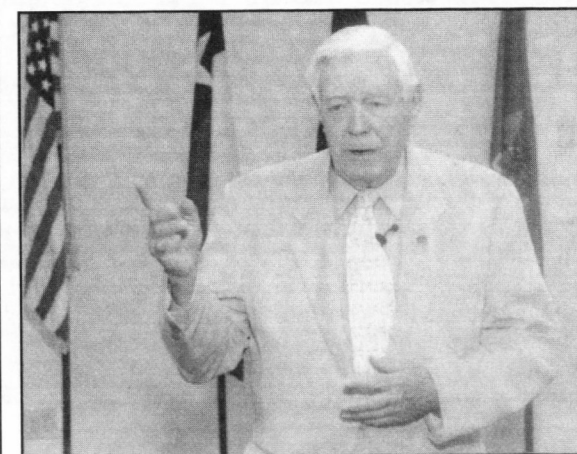
Cochiti Lake

Albuquerque District has signed a cooperative agreement with Cochiti Pueblo that allows the tribe to participate in managing operations at the Cochiti Lake area. The agreement, which excludes management of the federal dam, comes after years of sacrifice by the pueblo, including elements of its culture and agricultural way of life lost after construction of the dam.

Cochiti Dam was completed in 1975 to reduce flooding for Albuquerque, retain sediment, and provide recreation. Built on Cochiti Pueblo, the dam's impoundment submerged some of the best agricultural land, and nearly an entire generation did not have the same opportunity as their forefathers to practice farming, a focal point for the pueblo's way of life.

The agreement was signed by John Paul Woodley, Jr., the assistant secretary of the Army for civil works; Joseph Suina, Cochiti Pueblo governor; Michael Pecos, Cochiti Pueblo lieutenant governor; and Lt. Col. Bruce Estok, Albuquerque District commander.

"When I first heard of the pueblo's concerns, I recognized we're long overdue in acknowledging the sacrifice that Cochiti Pueblo made," Woodley said.



LTG (ret.) Morris

Lt. Gen. (retired) John Morris speaks at Tulsa District's Corps Day awards ceremony. Morris was the Chief of Engineers from July 1976 to September 1980. He had earlier been the district engineer for Tulsa District. (Photo courtesy of Tulsa District)

Command sgt. maj. has 'daunting' job

Article by Bernard Tate
Headquarters
Photos by F.T. Eyre
ACE-IT

The new command sergeant major of the U.S. Army Corps of Engineers said the enormity of the job dawned on him when he put on the command sergeant major's ring.

"We were standing in the hallway during the ceremony, and you know when you have that epiphany," said Command Sgt. Maj. Micheal Buxbaum. During the ceremony, Lt. Gen. Robert Van Antwerp, chief of engineers, presented Buxbaum with the command sergeant major's ring, crafted during World War II with scrap steel from a combat bridge. The ring passes from one USACE command sergeant major to the next.

"If you're a first sergeant you have 150 or 180 Soldiers," Buxbaum said. "As a battalion sergeant major you have 300 or 500. When our brigade deployed to Operation Iraq Freedom I had 6,200. But there are 31,000-plus employees in the Corps, and they're spread out over half the globe. That's daunting. That's more people than live in my hometown. So it really hit me when the chief of engineers gave me that ring. This is a big responsibility."

Buxbaum is the 10th command sergeant major of USACE. His assumption of responsibility ceremony was May 13, but he arrived for duty on April 29 from his previous job as command sergeant major of the 18th Engineer Brigade in Heidelberg, Germany. He says that he was "shocked" to get this assignment.

"I had never been assigned to USACE before, and when I look at the folks who were on that list with me, there were some folks who were probably just as qualified as me, if not more," Buxbaum said. "I'm happy to be here, but surprised. Never in my wildest dreams did I figure that I would end up here."

"When you select for this position, the highest noncommissioned officer in the Corps, what do you look for?" Van Antwerp asked during the ceremony. "I always start with character, because I already know I'm going to get technical competence. By this time in a sergeant major's career, there's no question he's got that. But what about character, because great organizations are built on the character of their people. So that was the first thing I looked for."

"Then I looked at what he has done," Van Antwerp continued. "We're looking for someone who's seasoned, but with that seasoning had to come the respect of other NCOs. For this selection, I called nine other command sergeants major, and asked 'What about...' and gave them a couple of names. And the feedback I got about Mike Buxbaum was overwhelming."

According to Buxbaum, any command sergeant major is the commander's right-hand man, his eyes and ears, and he answers only to the commander. His primary task is to



(Right) Command Sgt. Maj. Micheal Buxbaum in his dress blues during ENFORCE at Fort Leonard Wood, Mo. (Above) Buxbaum addresses an audience of Headquarters employees during a recent town hall meeting.

look after the welfare of the Soldiers, especially the enlisted troops. A command sergeant major does his homework and gives the commander straight facts about what is happening in the command, and about any problems that he finds.

"But there's a whole new set of dynamics here," Buxbaum said. "There are civilians, contractors, wage-grade workers, senior executive service. I've never dealt with half of these folks before. But when Lt. Gen. Van Antwerp interviewed me, he said, 'They're all just Soldiers, just like you. They just happen to wear different uniforms.' And I said, 'I understand that. I can relate.' So this is going to be an interesting, challenging assignment."

Buxbaum says that he will take a "very level headed" approach to this challenge.

"When it comes right down to it, it's all about leadership, and my charge from the boss is to make sure that our wage-grade employees are taken care of and, whether a person is a colonel or a GS-15 or whatever, to provide guidance and input to all of them," Buxbaum said.

"Really, a lot of times all I do is just listen, because everybody wants to bend your ear," he continued. "And that's fine. If I get out and listen and talk to people, I can understand what they're thinking, how their piece of the puzzle is working. And I can let the boss know, 'Sir, this is how we're moving down that road from good to great.' A lot of my function as a command sergeant major is to just listen. It doesn't matter if it's USACE or a regular Army brigade — most of the job is just listening."

Buxbaum also emphasized his open door policy.

"Every commander has an open door policy," he said. "Normally you schedule an appointment, 'Hey sir, I need to see you; this is the general subject we need to discuss.' Sergeant majors have

the same policy, only my door is *always* open. If you have something you need to raise to my level, just come in. If I'm here, we'll chat. If not, we can talk on the phone, or by e-mail. I don't have all the answers, but I have access to all the folks in Headquarters who *do* have the answers."

"I can also bring an issue to the attention of a division or district commander," Buxbaum added. "He or she might not be aware of it. So that's my purpose — to provide people with an answer, or put them in touch with the right folks to get an answer so that an issue doesn't become a big blown-out-of-proportion problem."

Although his door is always open, any command sergeant major does his best work in the field where the troops are. In the short time that Buxbaum has been with USACE he has already visited Seattle District, Northwestern Division, and Vicksburg District, and points in the Washington, DC, area including the Transatlantic Program Center (TAC) and the Washington Aqueduct.

Before he arrived, Buxbaum talked to some of the Corps' past command sergeants major "and it was very interesting. Almost to a person they were all surprised by the breadth and depth of what the Corps does. And that has come through in every visit I've made. I'm amazed at what we do. Six months ago, if you had told me that the Corps oversees the Washington Aqueduct, I would have said, 'Yeah, right.' Or that we have park rangers. It still blows me away that we have park rangers."

"And I'm sure there are more things I'll learn," Buxbaum continued. "I met with a boat captain in Vicksburg, and he said the Corps owns more boats than the Navy. Now, he might have been boasting a little, but we *do* have a lot of boats. I would have never thought that. And I thought that TAC was nothing more than a deployment processing center. Well, they do a lot



more than that; they have a whole piece of the Global War on Terror. So learning things like that will be the neatest thing about this job."

In his free time, Buxbaum says that he is looking forward to enjoying the Washington, DC, area with his wife Roberta (Bobby). He has visited the nation's capital before, but never lived there.

"My wife and I were talking about this just yesterday," Buxbaum said. "As you drive down the streets, you realize that you're in the nation's capital. I don't care which direction you look, there's a monument, a federal building, or history. I live at Fort Belvoir, Va., and on the way to work I drive right past Mount Vernon, George Washington's home. Now, how cool is that?"

Buxbaum also rides motorcycles, and is looking forward to doing that again now that he is back from Europe.

"I want to ride in Rolling Thunder — that's something I've always wanted to do," Buxbaum said. "I plan to buy a motorcycle, either a Gold Wing or a Harley. I've owned Gold Wings before, and I think I might try a Harley this time. The Chief of Engineers is a biker, and he and his daughter rode in Rolling Thunder this year. A couple of other folks from Headquarters did, too, and I'm looking forward to joining them next year."